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WOOD, HERRON & EVANS, LLP (LEAR)
2700 CAREW TOWER
441 VINE STREET
CINCINNATI, OH 45202

EXAMINER	
HEITBRINK, JILL LYNNE	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/708,312
Filing Date: February 24, 2004
Appellant(s): DEPUE, TODD L.

Mr. David W. Dorton
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed August 27, 2007 appealing from the Office action mailed March 23, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. However, the Examiner notes that the rejection of claim 5 is over Bertschi et al (U.S. Patent 5,651,998) in view of [not "and" as stated by appellant] Thomson (U.S. Patent 6627134), and further in view of Dry (U.S. Patent 6,899,363). The rejection of claims 5, 7 and 8 are over Schoemann et al (U.S. Patent Application Publication 2004/0017023), and further in view of Thomson [not "and Dry '363" as stated by appellant]. And, the rejection of claim 9 is over Schoemann in view of Thomson as applied to claims 5 and 7-8, and

further in view of Dry [not "one or more of Thomson'135 and Dry '363" as stated by appellant]. Appellant's arguments are clearly directed to these grounds of rejection on appeal.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,651,998	Bertschi et al.	7-1997
6,627,134	Thomson	9-2003
6,899,363	Dry	5-2005
2004/0017023	Schoemann et al.	1-2004

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bertschi et al (U.S. Patent 5,651,998) in view of Thomson (U.S. Patent 6627134), and further in view of Dry (U.S. Patent 6,899,363).

Bertschi et al, hereafter "Bertschi", discloses a method of forming a multi-layered molded article, as recited by claim 5. Bertschi teaches injecting three materials into a mold using a combination of co-injection and singular-injection nozzles. See lines 28-62 in column 7 and Fig. 16. Bertschi further teaches that the injections can be independently effected and that the co-injection nozzle is capable of simultaneous injection, as shown at lines 57-61 in column 7.

Bertschi does not teach that second and third materials are outer pliable and inner compressible layers formed during a co-injection step, as required by claim 5.

Thomson teaches forming a skin material over a core material in a co-injection process at lines 63-67 in column 2 and lines 1-6 in column 3. Thomson further teaches that the skin material is Santoprene (pliable) in example 4. Thomson still further teaches that the core is a foam material (compressible layer) at lines 35-40 in column 1.

Bertschi and Thomson are combinable because they are concerned with a similar technical field, namely, multi-shot molding. One of ordinary skill in the art at the time of the invention would have found it obvious to include the skin/foam combination taught by Thomson in the multi-layered molded article method of Bertschi. The motivation to do so would have been to use low cost recycled material where it is not visible. See lines 35-43 in column 1 of Thomson.

Bertschi/Thomson does not teach a substrate member forming an automotive armrest, as required by claim 5.

Dry teaches the construction of an automotive armrest with a flexible foam or elastomeric pad for a cushion material sandwiched between a substrate and a cover layer. See lines 15-20 in column 1.

Bertschi/Thomson and Dry are combinable because they are concerned with a similar technical field, namely, multi-shot molding. One of ordinary skill in the art at the time of the invention would have found it obvious to include the automotive application and cushion material taught by Dry in the multi-layered

molded article method of Bertschi/Thomson. The motivation to do so would have been to achieve an aesthetically and tactilely pleasing surface. See lines 63-68 in column 2 of Dry.

Claims 5 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schoemann et al (U.S. Patent Application Publication 2004/0017023), and further in view of Thomson.

Schoemann et al, hereafter "Schoemann", discloses two-shot molding process for an interior door trim panel, as required by claim 5. Schoemann teaches that a substrate is formed of a first material in a mold having a two-shot capability provided by a movable core forming a recess in the substrate. This is shown in paragraphs [0029] and [0030]. Schoemann further teaches that a second material forming an accent region (cover) is injected in the recess in a second shot after the mold is reconfigured. See paragraphs [0034] and [0035] and Fig. 1.

Schoemann teaches that the first material is polypropylene, which is a thermoplastic olefin, as required by claim 7. See paragraph [0032].

Schoemann does not teach co-injecting a third material, as required by claim 5. Schoemann further does not teach that second and third materials are outer pliable and inner compressible layers formed during a co-injection step, as also required by claim 5. Schoemann still further does not teach that the second material is a thermoplastic elastomer, as required by claim 8.

Thomson teaches forming a skin material over a core material in a co-injection process at lines 63-67 in column 2 and lines 1-6 in column 3. Thomson further teaches that the skin material is Santoprene (thermoplastic elastomer) in example 4. Thomson still further teaches that the core is a foam material (compressible layer) at lines 35-40 in column 1.

Schoemann and Thomson are combinable because they are concerned with a similar technical field, namely, molding multilayered articles. One of ordinary skill in the art at the time of the invention would have found it obvious to include in the method of Schoemann a cushion-like panel insert, as taught by Thomson. The motivation, as taught by Schoemann in paragraph [0034], is to provide a tactilely pleasing surface. A surface which is yielding as well as soft, as taught by Thomson, advances that purpose.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schoemann in view of Thomson as applied to claims 5 and 7-8 above, and further in view of Dry.

Schoemann/Thomson teach the method of claims 5-8, as discussed above.

Schoemann/Thomson do not teach the third material as a thermoplastic elastomer foam, as required by claim 9.

Dry teaches a flexible foam or elastomeric pad for a cushion material sandwiched between a substrate and a cover layer. See lines 15-20 in column 1.

Schoemann/Thomson and Dry are combinable because they are concerned with a similar technical field, namely, molding multilayered articles. One of ordinary skill in the art at the time of the invention would have found it obvious to include in the method of Schoemann/Thomson the cushion construction of Dry. The motivation, as taught by Schoemann in paragraph [0034], is to provide a tactilely pleasing surface. The cushioning material, as taught by Dry, further advances that purpose.

(10) Response to Argument

A. The rejection of Claim 5 under 35 U.S.C. 103(a) over Bertschi in view of Thomson, and further in view of Dry

Appellant argues that Bertschi is directed to injection a first material 490, and injecting a second and third material 444, 492 into the center of the first material 490; and, that this is not the same as set forth in claim 5. (The examiner believes that appellant's reference to col. 6, lines 47-62 and Fig. 16 in Bertschi was intended to be referring to col. 7, lines 47-62 and Fig. 16.) The examiner points out that the type of article shown in Fig. 16 is only one example, as stated in the cited section of Bertschi col. 7, line 47, 48 and 55-57, "one example of the operation of a system as shown in Fig. 16" and "This is only one example of the injection combinations which are possible using the principles of this embodiment of this invention." As stated in the rejection above, "Bertschi further teaches that the injections can be independently effected and that the co-injection nozzle is capable of simultaneous injection, as shown at lines 57-61 in column 7." This

section of Bertschi states "That is, injections can be sequential or simultaneous, the nozzles can be of any configuration, for example, opposed or offset, the injections can be independently and precisely metered, timed, or otherwise effected, and mold movements can take place between or during the injections." This passage of Bertschi (col. 7, lines 57-62) clearly discloses appellant's original claim 5 the injection of a first material to form a substrate member during a first shot of the molding operation, i.e. sequential injection, and co-injecting second and third material onto the substrate member to form a cover member on the substrate member during the second shot of the molding operation, i.e. simultaneous injections. Additionally, this passage of Bertschi discloses mold movements between injection such as between the first shot and second co-injection shot. Appellant discloses mold movements occurring between appellant's first shot and second shot as described in paragraph [0013] of the application.

The above explanation should not raise any question of new issues since appellant did not previously argue them. Appellant's amendment to claim 5 filed Dec. 20, 2006 inserted limitations to the forming of an automotive instrument panel, an interior door trim panel, an armrest, or a console, limitation to the cover layer being an outer pliable layer and an inner compressible layer. And, appellant argued that these limitations were not taught by Bertschi. Appellant has not argued until now the configuration of the molded article layers of Fig. 16 of Bertschi.

Bertschi (col. 1, lines 13-19) states "The method of co-injection is characterized by injecting a first resin into a mold cavity, followed by, or simultaneously with, the injection with one or more other resin types into the same cavity. This method typically results in the article having multiple layers across its cross-section and generally a greater number of layers than resin types in the case where sequential injection of the resins is used." This passage of Bertschi clearly discloses the broad steps of injecting a first material in a first shot and the co-injection (more than one resin types) in a second shot. Bertschi (col. 5, lines 45-67) discloses that the configuration of the article produced will be determined from the parameters used such as velocity, pressure, viscosity and timing. These parameters would determine the configuration of the product injected with the three materials as described in Bertschi col. 7, lines 28-62.

Additionally, Bertschi discloses the movement of the mold between the injections in col. 7, lines 61 and 62 in combination with the other sequential and simultaneous injection of materials. Bertschi (col. 6, lines 1-3) states that in addition to the parameters (viscosity, velocity, pressure, and timing), "if mold cavity shapes are altered and mold half movements are performed uniquely layered and configured articles can be achieved." This is similar to appellant's disclosure [0013] of removing the second mold portion 22b and replacing it with a third mold portion 22c.

Appellant argues the Thomson and Dry are directed to methods for making articles using only two materials and neither of these references discloses co-injecting second and third materials to form a cover on a substrate.

In Thomson, the invention is to adapt "conventional single-material molding machine to perform the sandwich molding process with relatively minor and low-cost changes" (col. 2, lines 4-8). Thomson is co-injecting an outer pliable layer and an inner compressible layer using a co-injection coaxial extrusion screw taught to replace a conventional single material extrusion screw. This is similar to the teaching of Bertschi in col. 7, lines 47-41 of replacing the single injection nozzle with a co-injection nozzle. Thomson (col. 2, lines 35-43) teaches the co-injection of outer pliable and inner compressible layers and teaches advantages such as "(1) to make a part with a chemically foamed core, gaining the light weight, low pressure, and flat surfaces of a foam part without the characteristic streaky exterior, (2) to use low cost recycled, "off-spec" or uncolored material where it is not visible, and (3) to make a part with different properties on the inside and outside, as for instance the presence or absence of reinforcing fibers or other property-changing additives."

As to Dry, Dry teaches the construction of an interior trim panel with a flexible foam pad mounted to a rigid structural substrate by injection into a first cavity, replacing one mold half and injecting the second material into the second cavity on the first material. In Dry, the injection of the second material is similar to the injection onto a substrate (two shot injection process) since the mold is moved between the first and second injections. Thus, the two-shot injection for forming an interior trim panel comprising the substrate member and a compressible layer is shown by Dry. Dry (col. 1, lines 15-20) provides teaching of the construction of an automotive armrest with a flexible foam or elastomeric

pad for a cushion material sandwiched between a substrate and a cover layer. Dry (col. 2, lines 63-68) teaches "the third mold surface 30 can be textured so as to create an aesthetically tactilely pleasing outer surface 64 of the armrest assembly 10."

The co-injection of a material and cover layer is taught by Bertschi and Thomson as being an alternative to single injection. Thus, a substrate, such as taught by Dry for an armrest of a trim panel, having the second injection step of the two step injection being a co-injection would have provided an aesthetically and tactilely pleasing outer surface of the armrest assembly. Bertschi (col. 7, lines 57-62) discloses that the combining of the mold movement (shown in Figs. 7 and 8 of Bertschi and shown in the two shot injection of Dry) with the sequential and simultaneous co-injection (shown by Bertschi and Thomson) for obtaining the desired layered configuration.

B. The rejection of Claims 5 and 7-8 under 35 U.S.C. 103(a) over Schoemann et al. in view of Thomson, and the rejection of Claim 9 over Schoemann in view of Thomson as applied to claims 5 and 7-8 above, and further in view of Dry

Appellant argues that neither Schoemann not Thomson discloses forming an automotive interior trim assembly using three materials. However, the combination of Schoemann and Thomson would have clearly provided the forming of an assembly with three materials. Schoemann (paragraphs [0029], [0030], [0034] and [0035]) discloses the two-shot injection process forming a

substrate and a softer cover material, and Thomson (col. 1, lines 36-44 and col. 2, lines 4-9) clearly teaches the replacing of the foam injection shot (second shot of Schoemann) with the co-injection of two materials. Thus, the combination produces an assembly with three materials. Clearly, a person of ordinary skill in the art would use the co-injection of Thomson for the second shot in Schoemann since this would produce a part with an aesthetically and tactilely pleasing surface (Schoemann [0034], last sentence) with less streaky exterior (Thomson col. 1, lines 36-44) by only relatively minor and low-cost changes (Thomson col. 2, lines 4-8). The combination shows a three-material, multi-shot, solution to a problem of forming a feature on a substrate with reasonable expectation of success and predictability.

Appellant argues that Dry is directed to forming a vehicle trim component using two materials in a two-shot process and does not utilize a third material to be co-injected. In Dry, the injection of second material is similar to the injection onto a substrate (two-shot injection process) since the mold is moved between the first and second injections. Thus, the two-shot injection for forming an interior trim panel comprising the substrate member and a compressible layer is shown by Dry. As taught by Thomson (col. 1, lines 35-40), the sandwiched co-injection has the advantages "(1) to make a part with a chemically foamed core, gaining the light weight, low pressure, and flat surfaces of a foam part without the characteristic streaky exterior, (2) to use low cost recycled, "off-spec" or uncolored material where it is not visible, and (3) to make a part with different properties on the inside and outside, as for instance the presence or absence of

reinforcing fibers or other property-changing additives." Clearly, the forming of a co-injected two material foam layer in Dry by using a co-injection extruder of Thomson would provide advantageous properties to the foam of Dry's interior trim panel. Especially, since Dry (col. 1, lines 17-20) discloses the combination of a foam with a coversheet mounted on the rigid substrate.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Jill L. Heitbrink

JILL L. HEITBRINK
PRIMARY EXAMINER
ART UNIT 137

Conferees:

CHRISTINA JOHNSON
SUPERVISORY PATENT EXAMINER

Christina Johnson

Jennifer ~~Kolb~~ Michener